

**§ 1918.91 Housekeeping.**

(a) *General.* Active work areas shall be kept free of equipment, such as lashing gear, and materials not in use, and clear of debris, projecting nails, strapping and other objects not necessary to the work in progress.

(b) *Slippery surfaces.* The employer shall eliminate conditions causing slippery walking and working surfaces in immediate areas used by employees.

(c) *Free movement of drafts.* Dunnage shall not be placed at any location where it interferes with the free movement of drafts.

(d) *Dunnage height.* Dunnage racked against sweat battens or bulkheads shall not be used when the levels of such racks are above the safe reach of employees.

(e) *Coaming clearance.* Dunnage, hatch beams, tarpaulins or gear not in use shall be stowed no closer than three feet (.91 m) to the port and starboard sides of the weather deck hatch coaming.

(f) *Nails.* (1) Nails that are protruding from shoring or fencing in the work area shall be rendered harmless.

(2) Dunnage, lumber, or shoring material in which there are visibly protruding nails shall be removed from the work area, or, if left in the area, the nails shall be rendered harmless.

(g) *Ice aloft.* Employees shall be protected from ice that may fall from aloft.

**§ 1918.92 Illumination.**

(a) *Walking, working, and climbing areas.* Walking, working, and climbing areas shall be illuminated. Unless conditions described in the regulations of the U.S. Coast Guard (33 CFR 154.570) exist for specific operations, illumination for cargo transfer operations shall be of a minimum light intensity of five foot-candles (54 lux). Where work tasks require more light to be performed safely, supplemental lighting shall be used.

(b) *Intensity measurement.* The lighting intensity shall be measured at the task/working surface, in the plane in which the task/working surface is present.

(c) *Arrangement of lights.* Lights shall be arranged so that they do not shine into the eyes of winch-drivers, crane

operators or hatch tenders. On Ro-Ro ships, stationary lights shall not shine directly into the eyes of drivers.

(d) *Portable lights.* Portable lights shall meet the following requirements:

(1) Portable lights shall be equipped with substantial reflectors and guards to prevent materials from coming into contact with the bulb.

(2) Flexible electric cords used with temporary lights shall be designed by the manufacturer for hard or extra-hard usage. Temporary and portable lights shall not be suspended by their electric cords unless the cords and lights are designed for this means of suspension. Connections and insulation shall be maintained in safe condition.

(3) Electric conductors and fixtures for portable lights shall be so arranged as to be free from contact with drafts, running gear, and other moving equipment.

(4) Portable cargo lights furnished by the employer for use aboard vessels shall be listed as approved for marine use by the U.S. Coast Guard or by a nationally recognized testing laboratory (see § 1910.7).

(e) *Entry into darkened areas.* Employees shall not be permitted to enter dark holds, compartments, decks or other spaces without a flashlight or other portable light. The use of matches or open flames is prohibited.

**§ 1918.93 Hazardous atmospheres and substances (See also § 1918.2).**

(a) *Purpose and scope.* This section covers areas in which the employer knows, or has reason to believe, that a hazardous atmosphere or substance may exist, except where one or more of the following sections apply: § 1918.94(a), Carbon monoxide; § 1918.94(b), Fumigated grains; § 1918.94(c), Fumigated tobacco; § 1918.94(d), Other fumigated cargoes; § 1918.94(e), Catch of menhaden and similar species of fish.

(b) *Determination of the hazard.* When the employer knows, or has reason to believe, that a space on a vessel contains or has contained a hazardous atmosphere, a designated and appropriately equipped person shall test the atmosphere prior to employee entry to detect whether a hazardous atmosphere exists.

(c) *Testing during ventilation.* When mechanical ventilation is used to maintain a safe atmosphere, tests shall be made by a designated person to ensure that the atmosphere is not hazardous.

(d) *Entry into hazardous atmospheres.* Only designated persons shall enter hazardous atmospheres, in which case the following provisions shall apply:

(1) Persons entering a space containing a hazardous atmosphere shall be protected by respiratory and emergency protective equipment meeting the requirements of subpart J of this part;

(2) Persons entering a space containing a hazardous atmosphere shall be instructed about the hazards, precautions to be taken, and the use of protective and emergency equipment. Standby observers, similarly equipped and instructed, shall continuously monitor the activity of employees within such space;

(3) Except in emergency or rescue operations, employees shall not enter any atmosphere identified as flammable or oxygen-deficient (less than 19.5% oxygen). Persons who may be required to enter flammable or oxygen-deficient atmospheres in emergency operations shall be instructed in the dangers attendant to those atmospheres and be instructed in the use of self-contained breathing apparatus which shall be used for entry.

(4) To prevent inadvertent employee entry into spaces identified as having hazardous, flammable or oxygen-deficient atmospheres, appropriate warning signs or equivalent means shall be posted at all means of access to those spaces.

(e) *Asbestos cargo leak.* When the packaging of asbestos cargo leaks, spillage shall be cleaned up by designated employees protected from the harmful effects of asbestos as required by § 1910.1001 of this chapter.

**§ 1918.94 Ventilation and atmospheric conditions (See also § 1918.2, definitions of Hazardous cargo, materials, substance or atmosphere and Ro-Ro operations).**

(a) *Ventilation with respect to carbon monoxide.* (1) When internal combustion engines exhaust into a hold, intermediate deck, or any other compart-

ment, the employer shall ensure that the atmosphere is tested as frequently as needed to prevent carbon monoxide (CO) concentrations from exceeding allowable limits. Such tests shall be made in the area in which employees are working by persons competent in the use of the test equipment and procedures. If operations are in a deep tank or refrigerated compartment, the first test shall be made within one half hour of the time the engine starts. To decide the need for further testing, the initial test in all other cargo handling areas shall be taken no later than one hour after the time the engine starts.

(i) The CO content of the atmosphere in a compartment, hold, or any enclosed space shall be maintained at not more than 50 parts per million (ppm) (0.005%) as an eight hour average area level and employees shall be removed from the enclosed space if the CO concentration exceeds a ceiling of 100 ppm (0.01%). Exception: The ceiling shall be 200 ppm (0.02%) instead of 100 ppm (0.01%) for Ro-Ro operations.

NOTE TO PARAGRAPH (a)(1)(i): The term eight hour average area level means that for any period in which the concentration exceeds 50 parts per million, the concentration shall be maintained for a corresponding period below 50 parts per million.

(ii) When both natural ventilation and the vessel's ventilation system are inadequate to keep the CO concentration within the allowable limits, the employer shall use supplementary means to bring such concentration within allowable limits, as determined by monitoring.

(2) The intakes of portable blowers and any exposed belt drives shall be guarded to prevent injury to employees.

(3) The frames of portable blowers shall be grounded at the source of the current by means of an equipment grounding conductor run with or enclosing the circuit conductors. When the vessel is the source of the current, the equipment grounding conductor shall be bonded to the structure of the vessel. Electric cords shall be free from visible defects.

(b) *Fumigated grains.* (1) Before commencing to handle bulk grain in any

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